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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,383	08/31/2001	Arulkumar P. Shanmugasundram	5920/FET/DV	7797

32588 7590 12/11/2003

APPLIED MATERIALS, INC.  
2881 SCOTT BLVD. M/S 2061  
SANTA CLARA, CA 95050

EXAMINER
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COLEMAN, WILLIAM D

ART UNIT	PAPER NUMBER
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2823

DATE MAILED: 12/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/943,383

Applicant(s)

SHANMUGASUNDRAM ET AL.

Examiner

W. David Coleman

Art Unit

2823

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) 12-72 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 12-72 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in Paper No. 12.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Miller et al., U.S. Patent 6,197,604 B1.

Miller discloses a semiconductor process as claimed. See FIGS. 1-9 where Miller teaches the claimed invention.

Art Unit: 2823

5. Pertaining to claim 1, Miller teaches a method for controlling a wafer property in a semiconductor processing tool using data collected from an in situ sensor, said method comprising the steps of:

- (1) setting recipe parameters relating to said wafer property according to a process model, wherein said model is used to predict wafer outputs (box 110 in FIG. 1);
- (2) executing a process (box 102) on a wafer with the tool according to said recipe parameters;
- (3) collecting data (see FIG. 7) relating to said wafer property during execution of said process with said in situ sensor;
- (4) adjusting said process by modifying said recipe parameters according to comparisons between said data collected by said in situ sensor relating to said wafer property and lfl results predicted by said model; and
- (5) using said data collected by said in situ sensor in a process on a subsequent wafer to be executed by the tool (see FIG. 9 also this is well known as a run-to-run process).

6. Pertaining to claim 2, Miller teaches the method of claim 1, wherein said property comprises wafer thickness due to a CMP (chemical-mechanical polish process the thickness of the wafer will change).

7. Pertaining to claim 3, Miller teaches the method of claim 1, wherein said tool comprises a polishing device.

8. Pertaining to claim 4, Miller teaches the method of claim 1, wherein said tool comprises a plurality of processing resources, each of which includes an in situ sensor, and wherein data from one in situ sensor may be forwarded to another processing resource in real time during execution of said process (box 904).

9. Pertaining to claim 5, Miller teaches the method of claim 1, further comprising the step of collecting data from an inline sensor; and  
  
integrating said data collected from said inline sensor with said data collected from said in situ sensor before processing said subsequent wafer (hence, run-to-run process).
10. Pertaining to claim 6, Miller teaches the method of claim 5, wherein data collected from said inline sensor is utilized to calibrate said in situ sensor (box 902).
11. Pertaining to claim 7, Miller teaches the method of claim 1, further comprising the step of collecting data from a sensor located at an upstream tool; and  
  
integrating said data collected from said upstream tool with said data collected from said in situ sensor before processing said subsequent wafer (box 910/912).
12. Pertaining to claim 8, Miller teaches the method of claim 7, wherein data collected from said upstream tool is utilized to calibrate said in situ sensor.
13. Pertaining to claim 9, Miller teaches the method of claim 1, wherein said parameters include a processing time (column 11, line 58).
14. Pertaining to claim 10, Miller teaches the method of claim 1, wherein said data collected by said in situ sensor is used for run- to-run control on subsequent wafers processed by said tool.
15. Pertaining to claim 11, Miller teaches the method of claim 1, wherein said tool comprises a plurality of processing devices, each of which includes an in situ sensor, and wherein data from one in situ sensor may be compared with data from another in situ sensor to in real time to compare results from each device.

Art Unit: 2823

***Conclusion***

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to W. David Coleman whose telephone number is 703-305-0004.

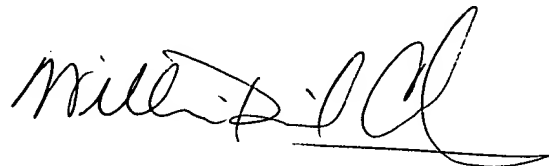
The examiner can normally be reached on 9:00 AM-5:00 PM. After February 4, 2004 please call 571-272-1856.

17. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 703-306-2794. The fax phone number for the organization where this application or proceeding is assigned is 703-308-7722.

18. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

W. David Coleman  
Primary Examiner  
Art Unit 2823

WDC

A handwritten signature in black ink, appearing to read 'W. David Coleman', with a long horizontal flourish extending to the right.